IN THE CLAIMS:

1. (Currently Amended) An apparatus for inspecting a surface of an article, the apparatus comprising:

a light source for irradiating a portion of the surface of the article with a light beam at an incident wavelength;

a first detector for receiving light at the incident wavelength from the portion of the surface and generating a first signal responsive to the light at the incident wavelength;

a second detector for receiving light at a wavelength different from the incident wavelength from the portion of the surface and generating a second signal responsive to the light at the wavelength different from the incident wavelength; ~~and~~

a scanner for scanning the light beam across the surface of the article from the portion of the surface to another portion of the surface; and

a processor configured for determining, based on both the first and second signals, whether a defect exists on the scanned portions ~~portion~~ of the surface, and for generating a single defect map of the surface of the article based on the processor's defect determination.

2. (Original) The apparatus of claim 1, wherein the light source is a laser for producing laser light at the incident wavelength.

3. (Original) The apparatus of claim 2, wherein the laser provides continuous wave laser light or modelocked laser light.

4. (Currently Amended) The apparatus of claim 2, wherein the ~~comprising a~~ scanner is for scanning the laser light across the surface of the article from the portion of the surface to the other ~~another~~ portion of the surface.

5. (Original) The apparatus of claim 4, wherein the scanner is for focusing the laser light to a spot and rapidly scanning the spot across the surface of the article.

6. (Original) The apparatus of claim 4, wherein the scanner is for focusing the laser light to a line.

7. (Original) The apparatus of claim 6, wherein the first and second detectors comprise a linear detector array comprising semiconductor detectors.

8. (Original) The apparatus of claim 1, wherein the second detector is for detecting fluorescence from the portion of the surface.

9. (Original) The apparatus of claim 1, wherein the second detector is for detecting Raman scattering from the portion of the surface.

10. (Original) The apparatus of claim 1, wherein the second detector is for detecting second harmonic generation.

11. (Original) The apparatus of claim 1, wherein the first and second detectors comprise photomultipliers.

12. (Original) The apparatus of claim 1, comprising a separator disposed between the surface of the article and the first and second detectors, for separating the light from the portion of the surface at the incident wavelength from the light at the other wavelength and directing the light to the first and second detectors.

13. (Original) The apparatus of claim 12, wherein the separator comprises a diffraction grating.

14. (Original) The apparatus of claim 12, wherein the separator comprises a cylindrical lens.

15. (Original) The apparatus of claim 12, wherein the separator comprises a bandpass filter.

16. (Original) The apparatus of claim 12, wherein the separator comprises a focusing lens.

17. (Original) The apparatus of claim 12, wherein the separator comprises a plurality of dichroic mirrors.

18. (Original) The apparatus of claim 12, further comprising an objective lens between the light source and the surface of the article.

19. (Original) The apparatus of claim 18, wherein the objective lens is for passing the light from the portion of the surface of the article to the separator.

20. (Cancelled)

21. (Currently Amended) An apparatus for inspecting a surface of an article, the apparatus comprising:

a light source for irradiating a portion of the surface of the article with a light beam at an incident wavelength;

a plurality of first detectors for receiving light at the incident wavelength from the portion of the surface and generating first signals responsive to the light at the incident wavelength;

a plurality of second detectors for receiving light at a wavelength different from the incident wavelength from the portion of the surface and generating second signals responsive to the light at the wavelength different from the incident wavelength; ~~and~~

a scanner for scanning the light beam across the surface of the article from the portion of the surface to another portion of the surface; and

a processor configured for determining, based on all of the first and second signals, whether a defect exists on the scanned portions ~~portion~~ of the surface, and for generating a single defect map of the surface of the article based on the processor's defect determination.

22. (Currently Amended) A method for inspecting a surface of an article, the method comprising:

irradiating a portion of the surface of the article with a light beam at an incident wavelength;

receiving light at the incident wavelength from the portion of the surface at a first detector to generate a first signal responsive to the light at the incident wavelength;

receiving light at a wavelength different from the incident wavelength from the portion of the surface at a second detector to generate a second signal responsive to the light at the wavelength different from the incident wavelength; ~~and~~

scanning the light beam across the surface of the article from the portion of the surface to another portion of the surface;

determining whether a defect exists on the scanned portions ~~portion~~ of the surface based on both the first and second signals; and

generating a single defect map of the surface of the article based on the defect determination.

23. (Cancelled)

24. (Currently Amended) The method of claim 22 ~~23~~, comprising focusing the light beam to a spot and rapidly scanning the spot across the surface of the article.

25. (Currently Amended) The method of claim 22 ~~23~~, comprising focusing the light beam to a line.

26. (Original) The method of claim 22, comprising detecting fluorescence from the portion of the surface with the second detector.

27. (Original) The method of claim 22, comprising detecting Raman scattering from the portion of the surface with the second detector.

28. (Original) The method of claim 22, comprising detecting second harmonic generation from the portion of the surface with the second detector.

29. (Original) The method of claim 22, comprising separating the light from the portion of the surface at the incident wavelength from the light at the other wavelength and directing the light to the first and second detectors.

30. (Currently Amended) ~~The method of claim 23, further comprising:~~ A method for inspecting a surface of an article, the method comprising:

irradiating a portion of the surface of the article with a light beam at an incident wavelength;

receiving light at the incident wavelength from the portion of the surface at a first detector to generate a first signal responsive to the light at the incident wavelength;

receiving light at a wavelength different from the incident wavelength from the portion of the surface at a second detector to generate a second signal responsive to the light at the wavelength different from the incident wavelength;

irradiating a portion of a reference surface corresponding to the portion of the surface of the article with a second light beam at the incident wavelength;

receiving light at the incident wavelength from the portion of the reference surface at the first detector to generate a third signal; ~~and~~

receiving light at a wavelength different from the incident wavelength from the portion of the reference surface at the second detector to generate a fourth signal; and

~~wherein the determining step comprises~~ determining whether a ~~the~~ defect exists on the portion of the surface ~~further~~ based on the first, second, third and fourth signals.

31. (Original) The method of claim 30, comprising generating a defect map of the surface of the article based on the first, second, third and fourth signals.

32. (Original) The method of claim 30, wherein the determining step comprises determining that the defect exists when the second signal is above a threshold level and the fourth signal is below the threshold level.

33. (Original) The method of claim 22, wherein the determining step comprises determining the defect exists when the second signal is a predetermined value, the predetermined value corresponding to a particular wavelength other than the incident wavelength.

34. (Original) The method of claim 33, comprising classifying the defect into a predetermined category when the second signal is the predetermined value.

REMARKS

Claims 1-19, 21, 22 and 24-34 are pending in the application. Claims 1, 4, 21, 22, 24, 25 and 30 have been amended. Claims 20 and 23 have been cancelled.

In the Office Action, claims 1-8, 10-12, 15-26, 28, 29 and 33-34 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 5,822,055 (Tsai). Claims 1, 21, and 22 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 4,692,690 (Hara). Claims 13 and 14 were rejected under 35 U.S.C. §103(a) as being unpatentable over Tsai. Claims 9 and 27 were rejected under 35 U.S.C. §103(a) as being unpatentable over Tsai in view of U.S. Patent 6,067,154 (Hossain). These rejections are respectfully traversed. Applicants respectfully request reconsideration and allowance of the claims in view of the following arguments.

Regarding the anticipation rejections of independent claims 1, 21, and 22, these claims have been amended to recite scanning the surface of the article with the light beam, determining whether a defect exists on the scanned portions portion of the surface based on all the signals furnished by the detectors, and generating a single defect map of the surface of the article based on the defect determination. These added limitations appeared in original dependent claims 4, 20 and 23, and are fully supported, for example, at page 7, lines 15-25 of the application.

Neither of the cited references, either alone or in combination, discloses or suggests the recited processor of amended claims 1 and 21 configured to generate a single defect map based on defect determinations made based on both linear and nonlinear optical phenomena detected by a plurality of detectors, or the corresponding method steps of amended claim 22. It is contended at page 4 of the Office Action that Tsai teaches generating such a defect map. However, this is not supported by Tsai's disclosure. Rather, the passage of Tsai cited in the Office Action in support of the Examiner's contention (col. 6:27 et seq.) explains that Tsai's

simultaneous brightfield and darkfield inspections (both of which consist of detection of linear optical phenomena) result in two independent defect lists, or maps. Tsai further teaches that the independent lists each have an independently determined defect threshold for determining what is a defect and what is not a defect (see Tsai col. 6:33-37). In contrast, the inventions of amended claims 1, 21 and 22 generate a *single* defect map resulting from defect determinations based on the input of *all* the detectors (detecting both linear and nonlinear optical phenomena).

In summary, Tsai's defect mapping is vastly different than that of amended claims 1, 21 and 22. Tsai teaches generating two separate defect maps based on the inputs of two detectors, both of which are detecting linear optical phenomena. Amended claims 1, 21 and 22 recite generating a *single* defect map resulting from defect determinations based on *both* linear and nonlinear optical phenomena detected by two or more detectors.

Amended independent claims 1, 21 and 22 are not anticipated by Tsai or Hara, because neither of these references discloses each and every element of claims 1, 21 and 22. In particular, neither Tsai nor Hara discloses the processor of amended claims 1 and 21 configured to generate a single defect map based on defect determinations made based on both linear and nonlinear optical phenomena detected by a plurality of detectors, or the corresponding method steps of amended claim 22. Moreover, it would not have been obvious to modify the teachings of either of these references to yield the inventions of claims 1, 21 or 22. The Hara reference does not teach or suggest generating a defect map of any kind. The Tsai reference does not teach or suggest creating a single defect map from the input of a plurality of detectors. Even assuming, ***arguendo***, that one skilled in the art was motivated to make a defect map in the embodiment of Tsai described at col. 12:19 et seq. (wherein reflected light and fluorescence are detected using separate detectors), they would not be motivated to combine the inputs of both detectors to

generate a single defect map, as claimed. Rather, Tsai would teach them to make two defect lists, or maps, as was done in the embodiment of col. 6:27 et seq.

Still further, the secondary Hossain reference cited in combination with Tsai does not teach or suggest the processor of amended claims 1 and 21 configured to generate a single defect map based on defect determinations made based on both linear and nonlinear optical phenomena detected by a plurality of detectors, or the corresponding method steps of amended claim 22. Therefore, no combination of Tsai and Hossain could yield the inventions of the amended independent claims.

Consequently, independent claims 1, 21 and 22 are patentable, as are claims 2-19, 24-29, 33 and 34, which depend from claims 1 and 22.

Regarding claim 30, which was indicated to contain allowable subject matter, this claim has been rewritten in independent form, and includes all the features stated in the Office Action as reasons for allowance.

Consequently, claim 30 is patentable, as are claims 31 and 32, which depend from claim 30.

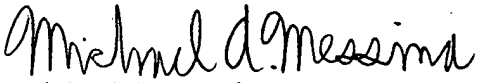
Reconsideration and withdrawal of the rejections under 35 U.S.C. §§ 102 and 103 are respectfully requested.

Accordingly, it is believed that all pending claims are now in condition for allowance. Applicants therefore respectfully request an early and favorable reconsideration and allowance of this application. If there are any outstanding issues which might be resolved by an interview or an Examiner's amendment, the Examiner is invited to call Applicants' representative at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

MCDERMOTT, WILL & EMERY



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